

Remarks

Claims 1-14 are pending in this application. Claim 7 stands rejected under 35 U.S.C. §112, second paragraph as indefinite. Claims 1, 2, 6, 8, 12, and 13 are rejected under 35 U.S.C. §102(e) as anticipated by Larson (U.S. Pat. No. 6,292,807). Claims 1, 2, 6, 8, 12, and 13 are rejected under 35 U.S.C. §102(e) as anticipated by Larson (U.S. Pat. No. 6,292,807). Claims 4, 7, and 9 are rejected under 35 U.S.C. §103(a) as obvious over Larson (U.S. Pat. No. 6,292,807). Claims 3, 5, 10, 11, and 14 are rejected under 35 U.S.C. §103(a) as obvious over Larson '807 in view of Najork et al. (U.S. Pat. No. 6, 377,984).

Claims 1 and 12 have been amended to require that a given incoming message is enqueued when any message slot is empty. Support for these claim amendments is provided on page 5, lines 8-12 of the present application. Claim 8 has been amended to make clear that the tag loaded into a FIFO queue identifies a given storage slot for a message. Support for this claim amendment is provided on page 5, lines 15-20. No new matter has been added.

Claim Rejections: 35 U.S.C. §112

Claim 7 stands rejected under 35 U.S.C. §112, second paragraph as being indefinite in that "it is unclear whether Applicant is claiming FIFO queues as a unit or each FIFO unit which has a plurality of storage slots." Claim 1 from which claim 7 depends reads, in part:

“providing a message store, the message store including a plurality of storage slots;

providing a plurality of FIFO queues;

enqueueing a given message including:

storing the given message in a given storage slot identified by a given tag when any slot is empty;

selecting one of the FIFO queues based at least on source identifier and type for the given message; and

loading the given tag onto the selected FIFO queue.”

Thus, claim 7 (and 1) require providing two types of elements:

1. “a plurality of FIFO queues” and
2. “a message store including a plurality of storage slots,”

Claim 7 requires that the number of storage slots is equal to the number of FIFO queues. In embodiments according to claim 7, when a message is stored in a storage slot, a FIFO queue will always be available onto which to “load the given tag,” since there is a 1-to-1 correspondence between FIFO queues and storage slots. If the number of FIFO queues is less than the number of storage slots, the method may become stalled temporarily if all of the FIFO queues were in use and an incoming message arrived that did not match the selection criteria for any of the FIFOs. This condition cannot occur if the limitations of claim 7 are met, because if a storage slot is free, at least one FIFO will be free. Thus, the language of claim 7 is clear that the FIFO queues are each individual queues (not a unit) and that there is a temporary

association between a FIFO queue and a storage slot, namely, when the tag for that storage slot is loaded onto the FIFO queue. Claim 7 is therefore clear and definite.

Claim Rejections: 35 U.S.C. §102(e)

Claims 1, 2, 6, 8, 12, and 13 are rejected under 35 U.S.C. §102(e) as anticipated by Larson (U.S. Pat. No. 6,292,807).

Larson teaches a method of ordering reads and writes to system memory for a graphics processor according to the AGP input/output bus protocol. Memory access requests ("messages") are stored in separate write and read request FIFO queues ("storage slots"). (See, e.g., Larson abstract.) Thus, an arriving message that corresponds to a write memory request cannot be stored in the read request queue, if the write request FIFO is full, even if the read request FIFO has space.

As amended, independent claims 1 and 12 now require:

"storing the given message in a storage slot identified by a given tag, when any slot is empty."

Embodiments of the present invention allow messages to be stored in any empty message slot providing improved efficiency versus a system where the message slots are dedicated for specific types of messages. Since Larson does not teach a required limitation of claims 1 and 12, Larson cannot anticipate either claim 1 or claim 12. Claims 2, 6, and 13 which depend from these independent claims and add further limitations are not anticipated by Larson for at least the same reasons as for the independent claims.

Claim 8, as amended, now requires:

“providing a plurality of FIFO queues, the queues containing tags identifying storage slots.”

These tags point to the storage location for the message rather than to a characteristic of the message itself. In contrast, Larson teaches that the tags in the Larson’s read age and write age FIFOs contain information that controls the ordering of read and write operations and does not identify the storage slots where the messages are stored. For example, adjacent tags in Larson’s FIFOs may contain the same value, depending on the order in which read and write operations are requested. Thus, Larson does not teach a required limitation of claim 8, as amended, and cannot anticipate claim 8.

Claim Rejections: 35 U.S.C. §103(a)

Claims 4, 7, and 9 are rejected under 35 U.S.C. §103(a) as obvious over Larson (U.S. Pat. No. 6,292,807.)

Larson is relied upon for teaching the limitations of claims 1 and 8 in claims 4, 7 and 9. Larson fails to teach these limitations for the same reasons as described above for claims 1 and 8. Since Larson does not teach required limitations of claims 4, 7, and 9, claims 4, 7, and 9 cannot be obvious over Larson.

Claims 3, 5, 10, 11, and 14 are rejected under 35 U.S.C. §103(a) as obvious over Larson ‘807 in view of Najork et al. (U.S. Pat. No. 6,377,984).

Larson ‘807 is relied upon for teaching the elements of claims 1 and 12. As described above, Larson does not teach a require limitation of claims 1 and

12, as amended. Najork teaches a method for ensuring that a webcrawler only downloads one piece of information from a given host computer on a network at a time, to avoid overloading the host. Najork employs multiple FIFO queues at a time to practice this method but does not provide the teaching, lacking in Larson, of coupling FIFO queues to storage slots and using any free storage slot to store an incoming message. Since neither Najork nor Larson provide this teaching, the combination of Najork and Larson cannot provide this teaching. Therefore, claims 3, 5, and 14 cannot be obvious over Larson in view of Najork.

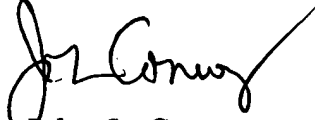
Larson '807 is relied upon for teaching the elements of claim 8. As described above, Larson does not teach a required limitation of claims 8, as amended. Najork employs multiple FIFO queues at a time to practice this method but does not provide the teaching, lacking in Larson, of employing FIFOs that contain tags that point to storage locations. Since neither Najork nor Larson provides this teaching, the combination of Najork and Larson cannot provide this teaching. Therefore, claims 10 and cannot be obvious over Larson in view of Najork.

For the reasons set forth above, it is submitted that all pending claims are in condition for allowance. Reconsideration of all claims and a notice of allowance are therefore requested. If any additional fees are required for the timely consideration of this application, please charge deposit account number 19-4972. The Examiner is requested to telephone the undersigned if any matters remain outstanding so that they may be resolved expeditiously.

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Respectfully submitted,

A handwritten signature in black ink, appearing to read "John L. Conway". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

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